In re Patent Application of:
GOLDSTEIN
Serial No. **10/060,497**
Filing Date: **JANUARY 30, 2002**

_____/

In the Claims:

1.   (Currently amended) A phased array antenna
comprising:

a substrate; ~~and~~

a plurality of spaced apart phased array antenna
elements carried by said substrate and arranged along an
imaginary Archimedean spiral~~.~~; and

at least one controller cooperating with said plurality
of phased array antenna elements to provide beam steering.

2.   (Original) The phased array antenna of Claim 1
wherein the imaginary Archimedean spiral comprises a plurality of
levels.

3.   (Original) The phased array antenna of Claim 2
wherein a spacing between adjacent pairs of phased array antenna
elements along the imaginary Archimedean spiral is substantially
equal to a radial spacing between adjacent levels.

4.   (Original) The phased array antenna of Claim 1
wherein the imaginary Archimedean spiral is defined by the polar
coordinate equation $r = a\theta^N$, where r is a radius, θ is an angle, a
is a real number, and N=1.

5.   (Original) The phased array antenna of Claim 1
wherein said plurality of phased array antenna elements have a

2

substantially equal spacing along the imaginary Archimedean spiral.

6. (Original) The phased array antenna of Claim 5 wherein the phased array antenna has an operating wavelength λ, and wherein the substantially equal spacing is less than about 10λ.

7. (Original) The phased array antenna of Claim 1 wherein the phased array antenna has an operating wavelength λ, and wherein a spacing between adjacent pairs of phased array antenna elements is less than about 10λ.

8. (Original) The phased array antenna of Claim 1 wherein said plurality of phased array antenna elements comprises greater than about 20 phased array antenna elements.

Claim 9 (Canceled).

10. (Currently amended) The phased array antenna of Claim 9 1 wherein said at least one controller comprises:
   a plurality of element controllers each connected to at least one of said phased array antenna elements; and
   a central controller connected to said plurality of element controllers.

11.   (Original) The phased array antenna of Claim 1 wherein substantially all of the plurality of phased array antenna elements of the phased array antenna are along the imaginary Archimedean spiral.

12.   (Currently amended) A phased array antenna comprising:

a substrate; ~~and~~

a plurality of spaced apart phased array antenna elements on said substrate, substantially all of said phased array antenna elements being arranged along an imaginary Archimedean spiral comprising a plurality of levels, a spacing between adjacent pairs of phased array antenna elements along the imaginary Archimedean spiral being substantially equal to a radial spacing between adjacent levels~~.~~; and

<u>at least one controller for cooperating with said plurality of phased array antenna elements to provide beam steering.</u>

13.   (Original) The phased array antenna of Claim 12 wherein the imaginary Archimedean spiral is defined by the polar coordinate equation $r = a\theta^N$, where r is a radius, θ is an angle, a is a real number, and N=1.

14.   (Original) The phased array antenna of Claim 12 wherein the phased array antenna has an operating wavelength λ,

4

and wherein the spacing between adjacent pairs of phased array antenna elements is less than about 10λ.

15. (Original) The phased array antenna of Claim 12 wherein said plurality of phased array antenna elements comprises greater than about 20 phased array antenna elements.

Claim 16 (Canceled).

17. (Currently amended) The phased array antenna of Claim ~~16~~ 12 wherein said at least one controller comprises:
a plurality of element controllers each connected to at least one of said phased array antenna elements; and
a central controller connected to said plurality of element controllers.

18. (Currently amended) A method for making a phased array antenna comprising:
providing a substrate; ~~and~~
arranging a plurality of phased array antenna elements on the substrate along an imaginary Archimedean spiral~~.~~; and
providing at least one controller for cooperating with the plurality of phased array antenna elements to provide beam steering.

19. (Original) The method of Claim 18 wherein the

5

Archimedean spiral comprises a plurality of levels.

20. (Original) The method of Claim 19 wherein arranging comprises setting a spacing between adjacent pairs of phased array antenna elements along the imaginary Archimedean spiral to be substantially equal to a radial spacing between adjacent levels.

21. (Original) The method of Claim 18 wherein the imaginary Archimedean spiral is defined by the polar coordinate equation $r = a\theta^N$, where r is a radius, θ is an angle, a is a real number, and N=1.

22. (Original) The method of Claim 18 wherein arranging comprises arranging substantially all of the plurality of phased array antenna elements of the phased array antenna to have a substantially equal spacing along the imaginary Archimedean spiral.

23. (Original) The method of Claim 22 wherein the phased array antenna has an operating wavelength λ, and wherein the substantially equal spacing is less than about 10λ.

24. (Original) The method of Claim 18 wherein the phased array antenna has an operating wavelength λ, and wherein arranging comprises setting a spacing between adjacent pairs of

phased array antenna elements to be less than about 10λ.

25.   (Original) The method of Claim 18 wherein the plurality of phased array antenna elements comprises greater than about 20 phased array antenna elements.